

DISCUSSION OF THE AMENDMENT

Claim 1 has been amended by limiting component D to an ether, and Claims 11 and 12 to be consistent therewith, as supported in the specification at page 11, lines 18-22. Claim 10 has been canceled.

No new matter is believed to have been added by the above amendment. Claims 1, 3-9, 11-13 and 53-62 are now active in the application. Claims 14 and 16-52 stand withdrawn from consideration.

REMARKS

The rejection of Claims 1, 3-13 and 53-62 under 35 U.S.C. § 103(a) as unpatentable over US 6,200,923 (Garoff et al), and further in view of US 5,278,117 (Luciani et al), is respectfully traversed.

Applicants maintain the arguments made in traversal of this rejection in the previous response, which arguments are hereby incorporated by reference.

Claim 1 as above-amended now limits neutral electron-donor aprotic compound D to an ether.

Garoff et al discloses a soluble polymerization catalyst (column 5, lines 22-24) based on Ti and MgCl₂, comprising a carboxylic acid ester and, as pointed out in previous responses, traces of an ethoxide linked to Ti, to wit: “there may be formed small amounts of titanium trichloride-alkoxide, part of which may remain as a small portion of the final composition” (column 4, lines 18-21); and “a small amount of ethoxide EtO- which originated in the reaction between TiCl₄ and the first complex MgCl₂·3EtOH” (column 7, lines 43-46).

Moreover, no protic component is present in the soluble catalyst obtained according to Garoff et al; only an alkoxide linked to Ti, while the corresponding alcohol EtOH is mentioned only when presenting the analytical results (“calculated as EtOH”, i.e., not effectively present in the composition), presumably formed as a consequence of acidic treatment and hydrolysis, according to common analytical techniques (column 11, lines 28-31).

Finally, Applicants emphasize that in Garoff et al, the ethoxide is considered an impurity only, without playing any role or having any effect in the properties of the catalyst. Note, for example, that no ethoxide/EtOH is present in the composition obtained according to

Example 4. Compare to the disclosure therein that, in effect, the presence or absence of such impurity is irrelevant (column 10, lines 49-53).

Based on the above discussion, it is apparent that the catalytic composition according to Garoff et al has nothing in common with that of the presently-claimed invention, either considered alone or in combination with Luciani et al, with reference to the presence of a granular inert support.

Moreover, the problem faced by Garoff et al relates to the production of a soluble composition having a defined stoichiometry, which is active in olefin polymerization, particularly of propylene, as confirmed by the examples therein. Garoff et al neither discloses nor suggests the problems encountered when low or very low density ethylene copolymers are to be produced in the gas phase, such as the durability of the fluidized bed, which is impaired by possible formation of products which are prone to aggregation. The catalyst component according to the present invention is surprisingly able to solve said problems and is particularly effective in producing, with an extremely high activity, ethylene copolymers with reduced surface tackiness.

In this respect, Garoff et al discloses the production of polypropylene (having only up to 7% of ethylene) at 70°C, with an activity from 20 to 40 kg/gTi, whereas, on the contrary, in the examples according to the present invention, LLDPE or VLDPE is obtained in a non-aggregated granular form, at 80-85°C, with an activity higher, on the average, than 1000 kg/gTi. Even though the polymerization conditions are different in the two cases, the activity of the catalyst according to the present invention is so much higher than that of Garoff et al that it is quite unlikely that a person of ordinary skill in the art would have even considered Garoff et al's catalyst in order to solve the stated problem.

The catalyst component D according to the present invention is now limited to an ether, which is bound to the semicrystalline solid structure and a second component, namely

an organo-oxygenated protic compound D_p, which partially substitutes ether D present in the formation step (b). The ether donor D is a compound whose chemical features, particularly as coordinating compound, are substantially different from those of a carboxylic acid ester such as in Garoff et al. Particularly, by far different is reactivity in case of alcohol substitution. Moreover, as pointed out in the previous response, Garoff et al does not disclose the presence of an alcohol in the solid component.

In sum, it is apparent that the differences in terms of structure, production and use between the catalyst component according to the present invention and the solid disclosed by Garoff et al are so outstanding that one of ordinary skill in the art would not have been able to obtain the present invention from Garoff et al, alone or combined with Luciani et al.

In the Response to Arguments of the Office Action, the Examiner essentially ignores the process limitations of the claims in finding, in effect, no patentable difference between the inventive product herein and that of Garoff et al.

In reply, Applicants have shown above and in the previous responses how the respective products are different and how that of Garoff et al does not suggest that herein claimed, as well as how the process limitations contribute to the properties of the product and thus necessarily, the product itself.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

Application No. 10/578,873
Reply to Office Action of August 5, 2011

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.



Harris A. Pitlick
Registration No. 38,779

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)